ROUTING RECORD

DATE	FROM	TO	ACTION
4-17-08	AD#1	GR#1	Prescreen
4-23-08	GR#1		I Accept C/C
2-12-09	GR#1	AD#1	PO Recom. C/C for ECF
4-14-09	GR#1	AD#1	REV-PO H
5-26-09	AD#1	CT#1	PLO Approved (TV)

REFERENCE TO OTHER APCD RECORDS INCLUDING VARIANCES

496824

G2959

APPL # 480909
I. D # 29110

ORANGE COUNTY SANITATION DISTRICT
22212 BROOKHURST ST
HUNTINGTON BEACH
INTERNAL COMBUSTION ENGINE

Date. 04/02/08

Ident (2)

ORANGE COUNTY SANITATION DISTRICT
INTERNAL COMBUSTION ENGINE

AP480909
ID 29110

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
Orange County Sanitation District

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD): 029110

3. Owner's Business Name (only if different from Business Name of Operator):

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

22212 Brookhurst Street
Street Address

Huntington Beach | CA, | 92646 - 8406
City | State | Zip Code

County: ○ Los Angeles ◉ Orange ○ San Bernardino ○ Riverside

Contact Name: Vlad Kogan

Contact Title: Senior Scientist | Phone: (714) 593-7085

Fax: (714) 962-8379 | E-Mail: vkogan@ocsd.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

10844 Ellis Avenue
Street Address

Fountain Valley | CA | 92708 - 7018
City | State | Zip Code

Contact Name: Vlad Kogan

Contact Title: Senior Scientist | Phone: (714) 593-7085

Fax: (714) 962-8379 | E-Mail: vkogan@ocsd.com

Section D: Application Type

The facility is in ○ RECLAIM ○ Title V ○ RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- ○ New Construction (Permit to Construct)
- ○ Equipment Operating Without A Permit or Expired Permit*
- ○ Administrative Change
- ○ Equipment On-Site But Not Constructed or Operational
- ○ Title V Application (Initial, Revisions, Modifications, etc.)
- ○ Compliance Plan
- ○ Facility Permit Amendment
- ○ Registration/Certification
- ○ Streamlined Standard Permit
- ○ Permitted Equipment Altered/ Modified Without Permit Approval*
- ○ Proposed Alteration/Modification to Permitted Equipment
- ○ Change of Condition For Permit To Operate
- ◉ Change of Condition For Permit To Construct
- ○ Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)
A/N 414654

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 02/01/2008

8. Description of Equipment:
Internal Combustion Engine (CG2-HB), Cooper Bessemer, Model No. LSVB-16-SGC, 4166 HP, Natural Gas and/or Digester Gas Fired, Driving a 3000 KW Electric Generator

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? ◉ No ○ Yes

10. For Identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) ◉ No ○ Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?
◉ No ○ Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Municipal Wastewater Treatment

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221320

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ○ No ◉ Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? ◉ No ○ Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official:
Michael D. Moore

18. Title:
Manager, ECRA

19. Print Name:
Mike D. Moore

20. Date:
3/24/08

Check List

- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE:	VALIDATION
	470909	B C D	056057	$1367.36 D	MO 04 02 08

ENG.	A	R	ENG.	A	R	CLASS	ASSIGNMENT	CHECK/MONEY ORDER	AMOUNT	Tracking #
DATE 4/23/08	ECR		DATE			I II IV	Unit A Engineer	#10000990 2B	$	

8204 | 15

CT 69016

2 9 5

Ident. Eq.

South Coast Air Quality Management District

Form 400-CEQA

California Environmental Quality Act (CEQA) Applicability

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385

www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Lori Inga at (909) 396-3109.

FACILITY INFORMATION

Business Name of Operator to Appear on the Permit:	Facility ID (6-Digit):
Orange County Sanitation District	029110

Project Description:

Change of condition for Permit to Construct to allow permitted internal combustion engines to comply with the requirements of Rule 1110.2 - Emissions from Gaseous- and Liquid-Fueled Engines as amended on February 1, 2008.

REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
A.	○	◉	A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project? If yes, a permit cannot be issued until a Final CEQA document and Notice of Determination is submitted.
B.	○	◉	A request for a change of permittee only (without equipment modifications)?
C.	○	◉	Equipment certification or equipment registration (qualifies for Rule 222)?
D.	○	◉	A functionally identical permit unit replacement with no increase in rating or emissions?
E.	○	◉	A change of daily VOC permit limit to a monthly VOC permit limit?
F.	○	◉	Equipment damaged as a result of a disaster during state of emergency?
G.	○	◉	A Title V (i.e., Regulation XXX) permit renewal (without equipment modifications)?
H.	○	◉	A Title V administrative permit revision?
I.	○	◉	The conversion of an existing permit into an initial Title V permit?

If "Yes" is checked for any question above, your application does not require additional evaluation for CEQA applicability. Skip to page 2, "SIGNATURES" and sign and date this form.

REVIEW OF IMPACTS WHICH MAY TRIGGER CEQA

Complete Sections I-V! by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Section I – General
1.	○	◉	Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project? Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	○	◉	Is this project part of a larger project?
			Section II – Air Quality
3.	○	◉	Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?
4.	○	◉	Does this project include the open outdoor storage of dry bulk solid materials that could generate dust? If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.

[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

	Yes	No	
5.	○	◉	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	◉	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	○	◉	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?**[4]
			Section III – Water Resources
8.	○	◉	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	○	◉	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Section IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	◉	**a. the need for more than 350 new employees?**
	○	◉	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	◉	**c. increase customer traffic by more than 700 visits per day?**
			Section V – Noise
11.	○	◉	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Section VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	◉	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	◉	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

"REMINDER: For each "Yes" checked in the sections above, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc."

SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:	TITLE OF RESPONSIBLE OFFICIAL OF FIRM:	
Michael D. Moore	Manager, ECRA	
TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:	RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER:	DATE Signed:
Mike D. Moore	(714) 5937-450	3/26/08
SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM:	TITLE OF PREPARER:	
V Kogan	Senior Scientist	
TYPE OR PRINT NAME OF PREPARER:	PREPARER'S TELEPHONE NUMBER:	DATE Signed:
Vlad Kogan	(714) 5937-085	3/26/08

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND THE ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

Table 1
Plant 2 Digester Gas Production, Fuel Consumption and Electricity Generation for 2007

		Digester Gas Usage			Natural Gas Usage							
	Digester Gas Production (kscf)	Quantity (kscf)	High Heating Value (Btu/ft^3)	Heating Value (therms)	Quantity (kscf)	High Heating Value (Btu/ft^3)	Heating Value (therms)	Total Fuel Usage (therms)	Percent Natural Gas Usage	Engine Output (kwh)	Steam Turbine (kwh)	Total Electricity Generated (kwh)
January	83,200	76,462	626	478,653	9,238	1,020	94,231	572,884	16.45%	6,370,264	205,736	6,576,000
February	74,100	68,047	622	423,250	9,953	1,027	102,219	525,469	19.45%	5,990,381	185,619	6,176,000
March	80,500	75,245	625	470,283	9,534	1,018	97,058	567,341	17.11%	5,530,447	197,553	5,728,000
April	73,200	71,574	625	447,336	10,591	1,018	107,813	555,149	19.42%	4,590,124	177,876	4,768,000
May	74,600	71,972	621	446,947	5,213	1,020	53,169	500,116	10.63%	4,615,155	200,845	4,816,000
June	71,600	70,639	624	440,785	16,881	1,019	172,019	612,805	28.07%	4,709,525	218,475	4,928,000
July	72,300	72,372	634	458,840	17,345	1,020	176,922	635,762	27.83%	5,263,663	176,337	5,440,000
August	73,700	73,964	634	468,929	17,274	1,018	175,844	644,773	27.27%	5,395,018	236,982	5,632,000
September	65,200	65,705	627	411,970	18,088	1,016	183,769	595,739	30.85%	5,035,483	148,517	5,184,000
October	68,400	68,565	631	432,645	15,401	1,016	156,471	589,116	26.56%	4,944,000	0	4,944,000
November	66,600	68,012	634	431,196	13,186	1,021	134,629	565,825	23.79%	4,704,000	0	4,704,000
December	70,300	68,995	630	434,671	13,675	1,019	139,345	574,016	24.28%	4,832,000	0	4,832,000
Average	*72,808*	*70,963*	*628*	*445,459*	*13,032*	*1,019*	*132,791*	*578,250*	*22.64%*	*5,165,005*	*145,662*	*5,310,667*
TOTAL	873,700	851,552		5,345,505	156,379		1,593,489	6,938,995		61,980,060	1,747,940	63,728,000

kscf = 1000 standard cubic feet

Table 2
Plant 2 Power Demand for 2007

Conditions	Total OCSD Flow (MGD)	Energy Demand (MW)	Numbers of Engines in Operation	Monthly CGS Output (MW)
Dry Weather	240-320	7.8-8.5	3 @ 70-80% Load, 70-80% Di-Gas	7.1-8.8
Wet Weather (Heavy Rain/Melting Snow)	320-400	10.0-12.0	4 @ 90-100% Load, 60% Di-Gas	9.3-10.7
Peak Wet Weather (Heavy Rainstorm)	400-500	13.0-16.0	5 @ 100% Load, 50% Di-Gas	12.0-15.0

MGD = Million Gallons per Day
MW = Megawatt

ORANGE COUNTY
SANITATION DISTRICT

10844 Ellis Avenue, P.O. Box 8127
Fountain Valley, CA 92728-8127
(714) 962-2411

VENDOR NO. 15843 DATE: 03/05/08 CHECK NO. 1000089023

VENDOR NAME SOUTH COAST AIR QUALITY MGT RE

INVOICE NO.	INVOICE DATE	DESCRIPTION	GROSS AMOUNT	DISC. - ADJ.	PAYMENT AMOUNT
PERMIT FEES	02/20/08		8,204.15		8,204.15
		AMOUNT - U.S.	ARS		$*****8,204.15

SCAQM PERMIT PROCESSING SYSTEM (PPS)

FEE DATA - SUMMARY SHEET

(31)

Application No :	480909	IRS/SS No:	
Previous Application No:	414654	Previous Permit No:	F96020

Company Name :	ORANGE COUNTY SANITATION DISTRICT	Facility ID:	29110
Equipment Street:	22212 BROOKHURSTST , HUNTINGTON BEACH CA 92646		
Equipment Desc :	I C E (>500 HP) NAT & DIGESTER GAS		

Equipment Type :	BASIC			Fee Charged by:	B-CAT
B-CAT NO. :	056057	C-CAT NO:	00	Fee Schedule:	D
Facility Zone :	18	Deemed Compl. Date:	4/23/2008	Public Notice:	NO

Evaluation Type :	CHANGE OF CONDITIONS, (PO)	Small Business:	☐
Disposition :	Approve PO, Recommended by Engineer	Higher Fees for Failing to Obtain a Permit:	☐
Lead Appl. No :	480908	Identical Permit Unit:	☑

Air quality Analysis			$0.00	Filing Fee Paid:	$0.00
E.I.R			$0.00	Permit Processing Fee Paid:	$1,367.36
Health Risk Assessment			$0.00	Permit Processing Fee Calculated*:	$1,367.36
Significant Project			$0.00	Permit Processing Fee Adjustment:	$0.00
Expedited Processing	Hours:	0.00	$0.00		
Source Test Review	Hours:	0.00	$0.00		
Time & Material	Hours:	0.00	$0.00		
				Total Additional Fee:	$0.00
				Additional Charge:	$0.00

COMMENTS: CHANGE OF CONDITION FOR EMISSION CORRECTION FACTOR (ECF), RULE 1110.2

RECOMMENDED BY: GAURANG RAWAL DATE: 02/10/2009

REVIEWED BY: CK DATE: 5/26/09

* ADJUSTED FOR SMALL BUSINESS, IDENTICAL EQUIPMENT AND P/O NO P/C PENALTY

SCAQMD PERMIT PROCESSING SYSTEM (PPS)

AEIS DATA SHEET

Company Name : ORANGE COUNTY SANITATION DISTRICT
Facility ID : 29110
Equipment Address : 22212 BROOKHURST ST
HUNTINGTON BEACH CA 92646

Application Number : 480909
Equipment B-Cat : 056057
Estimated Completion Date : 02/11/09
Equipment C-Cat :
Equipment Type : Basic
Equipment Description : I C E (>500 HP) NAT & DIGESTER GAS

	Emissions	
Emittants	R1 LB/HR	R2 LB/HR
CO	27.60	27.60
NOX	8.52	8.52
PM10	0.75	0.75
ROG	3.87	3.87
SOX	0.87	0.87

Applicable Rules

1110.2	02/01/2008	Emissions from Gaseous-and Liquid-fueled Engines
401	11/09/2001	Visible Emissions
402	05/07/1976	Nuisance

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Daily Start Times :	00:00	00:00	00:00	00:00	00:00	00:00	00:00
Daily Stop Times :	24:00	24:00	24:00	24:00	24:00	24:00	24:00

User's Initials : GR01 Date: 02/11/09 Supervisor's Name : CDT Review Date : 5/26/09

NSR DATA SUMMARY SHEET

Application No: 480909
Application Type: Change of Conditions
Application Status: PENDAPPRV
Previous Apps,Dev,Permit #: 414654, 0 - ICE-PPS, NONE

Company Name: ORANGE COUNTY SANITATION DISTRICT
Company ID: 29110
Address: 22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM: NO
RECLAIM Zone: 01
Air Basin: SC
Zone: 18
Title V: YES

Device ID: 0 - ICE-PPS
Estimated Completion Date: 12-30-2008
Heat Input Capacity: 33 Million BTU/hr
Priority Reserve: NONE - No Priority Access Requested
Recommended Disposition: 31 - PERMIT TO OPERATE GRANTED
PR Expiration:
School Within 1000 Feet: NO
Operating Weeks Per Year: 52
Operating Days Per Week: 7
Monday Operating Hours: 00:00 to 24:00
Tuesday Operating Hours: 00:00 to 24:00
Wednesday Operating Hours: 00:00 to 24:00
Thursday Operating Hours: 00:00 to 24:00
Friday Operating Hours: 00:00 to 24:00
Saturday Operating Hours: 00:00 to 24:00
Sunday Operating Hours: 00:00 to 24:00

Emittant: CO
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 27.6 lbs/hr
Max Daily: 662.4 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 27.6 lbs/hr
Max Daily: 662.4 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 672 lbs/day
Annual Emission: 241113.6 lbs/yr
District Exemption: None

Emittant: NOX
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 8.52 lbs/hr
Max Daily: 204.48 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 8.52 lbs/hr
Max Daily: 204.48 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 207 lbs/day
Annual Emission: 74430.72 lbs/yr
District Exemption: None

Emittant: PM10
BACT:
Cost Effectiveness: NO
Source Type: MINOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 0.75 lbs/hr
Max Daily: 18 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.75 lbs/hr
Max Daily: 18 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 18 lbs/day
Annual Emission: 6552 lbs/yr
District Exemption: None

Emittant: ROG
BACT:
Cost Effectiveness: NO
Source Type: MINOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 3.87 lbs/hr
Max Daily: 92.88 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 3.87 lbs/hr
Max Daily: 92.88 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 94 lbs/day
Annual Emission: 33808.32 lbs/yr
District Exemption: None

Emittant: SOX
BACT:
Cost Effectiveness: NO
Source Type: MINOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 0.87 lbs/hr
Max Daily: 20.88 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.87 lbs/hr
Max Daily: 20.88 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 21 lbs/day
Annual Emission: 7600.32 lbs/yr
District Exemption: None

SUPERVISOR'S APPROVAL: CDC SUPERVISOR'S REVIEW DATE: 5/26/09

Processed By: gaurangr 2/11/2009 10:05:27 AM

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. G2959
A/N 480909

Equipment Description:

RESOURCE RECOVERY SYSTEM NO. 2 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
[RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	93 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).

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D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions And Requirements:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOx: 45.4 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26)
ROG: 315 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26).
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

PERMIT TO OPERATE

Permit No. TBD
A/N 480909

Equipment Description:

RESOURCE RECOVERY SYSTEM NO. 2 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
[RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
[RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
[RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
[RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
[RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
[RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

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9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	93 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).

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D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

Emissions And Requirements:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOx: 45.4 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26)
ROG: 315 PPMV, RULE 1110.2 (WITH ECF ADJUSTMENT FACTOR = 1.26).
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 6	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPL NO SEE BELOW	DATE 4/14/2009
PERMIT APPLICATION EVALUATION AND CALCULATIONS	PROCESSED BY GCR	CHECKED BY

PERMIT TO OPERATE (CHANGE OF CONDITION) EVALUATION

APPLICANT'S NAME: ORANGE COUNTY SANITATION DISTRICT (OCSD)

MAILING ADDRESS: 10844 ELLIS AVENUE
FOUNTAIN VALLEY, CA 92708
ATTN.: VLAD KOGAN, SENIOR SCIENTIST

EQUIPMENT ADDRESS: 22212 BROOKHURST STREET
(WASTEWATER TREATMENT PLANT NO. 2)
HUNTINGTON BEACH, CA 92646-8406

FACILITY ID NO.: **029110**

EQUIPMENT DESCRIPTION:

APPLICATION NO. 480908

RESOURCE RECOVERY SYSTEM NO. 1 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG1-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

APPLICATION NO. 480909

RESOURCE RECOVERY SYSTEM NO. 2 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

APPLICATION NO. 480911

RESOURCE RECOVERY SYSTEM NO. 3 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG3-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

APPLICATION NO. 480912

RESOURCE RECOVERY SYSTEM NO. 4 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG4-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

APPLICATION NO. 480916

RESOURCE RECOVERY SYSTEM NO. 5 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG5-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions: (A/N 480908, 480909, 480911, 480912 and 480916)

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
   [RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
   [RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
   [RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
[RULE 204]

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY.
[RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	93 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY)
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (FUEL ONLY)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (FUEL ONLY)
M. POWER OUTPUT

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

EMISSIONS AND REQUIREMENTS:

16. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

CO: 2000 PPMV, RULE 1110.2
NOX: 45.4 PPMV, RULE 1110.2 (WITH 1.26 ECF ADJUSTMENT FACTOR)
ROG: 315 PPMV, RULE 1110.2 (WITH 1.26 ECF ADJUSTMENT FACTOR)
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS

BACKGROUND:

On April 4, 2008, the above A/Ns 4890908, 909, 911, 912 & 916 (identical equipment) were submitted by the Orange County sanitation District (OCSD) for change of condition for NOx and VOC emission concentrations, per Rule 1110.2 (d) (1) (C), amended February 1, 2008. For these applications, OCSD has also requested in their submittal letter (March 27, 2008) to allow greater than 10% natural gas usage for these biogas engines. OCSD has proposed to allow up to 25% natural gas. Each identical equipment is part of the Central generation System (CGS), spark-ignited internal combustion engine, located at Huntington Beach, Plant No. 2.

Based on past conversations with OCSD staff, on February 12, 2009, OCSD has informed to process these applications for ECF based concentration limits to expedite permit issuance (see e-mail correspondences of 2/11 and 2/12/09 from OCSD). Therefore, these applications are not evaluated for initial request of >10% NG usage at this time. OCSD was informed to file separate applications, in future, if >10% NG usage is needed for these CGS engines to comply with Rule 1110.2 requirements.

This is a Title V facility and initial Title V facility permit was issued that became effective January 12, 2009. Application for Title V permit revision is submitted.

PROCESS DESCRIPTION:

On 01/12/2009, initial Title V permit was issued.
Title V facility permit contained reissued permits, that superseded previous permits issued on 7/08/2008. The following are the most recent permits granted for the above engines,

R-96019 / A/N 414653 (CG1-HB)
R-96020 / A/N 414654 (CG2-HB)
R-96021 / A/N 414655 (CG3-HB)
R-96022 / A/N 414656 (CG4-HB)
R-96023 / A/N 414657 (CG5-HB)

To comply with Rule (d) (1) (C), Table III, Emission Correction factor (ECF) based concentrations, OCSD had conducted required source tests [Per R1110.2 (d) (1) (C) (i) and (ii)] for each engine during June and July 2008. The tests were conducted by SCEC and Advanced Engine Technologies Corp. (AETC) as required under R1110.2 (ASME Performance Test Code PTC 17-1973) for high, medium and low load, and average values determined for NOx, VOC and ECF (see summary results tables in folder).

Average results from three different loads are summarized below,

CGS Engines	**Units**	**No. 1**	**No. 2**	**No. 3**	**No. 4**	**No. 5**
Exhaust Flow Rate	DSCFM	10,230	9,751	10,634	10,822	9,559
O_2	%O2	12.21	12.01	12.44	12.47	12.20
NO_x	ppmvd @ 15% O2	28.2	23.4	22.6	23.6	22.4
TNMOC	ppmvd @ 15% O2	97.5	93.3	34.1 ?	74.3	N/A
CO (for information)	ppmvd @ 15% O2	440.3	420.6	?	514.5	457.3
Measured Q_a	Btu/Bhp-hr	7438.3	7403.7	7,403.3	7789.2	6838.7
ECF = 9250 / Q_a		1.25	1.26	1.25	1.19	1.37

EMISSION (ppmvd at 15% O2) :

For these identical engines, average **ECF = 1. 26** will be used to determine ECF based emission (con.)

NO_x = 36 x 1.26 = **45.4 ppmvd**

TNMOC (VOC) = 250 x 1.26 = **315 ppmvd**

CO concentration limit is kept as before as no ECF adjustment is required..

New Condition No. 11 is added to the existing engines' permits. Revised Condition No. 12.

Mass emissions are kept same as under previous permit(s);
CO = 27.6 lbs/hr
NOx = 8.52 lbs/hr
PM10 = 0.75 lbs/hr
ROG = 3.87 lbs/hr
SOx = 0.87 lbs/hr

RULES EVALUATION:

Compliance with all applicable rules and regulations is expected.
NOx and VOC concentration limits, based on ECF, are imposed, Condition No. 11, per Rule 1110.2 (d) (1) (C).

RECOMMENDATION:

Permit to operate for the proposed change of condition for each engine is recommended with above listed conditions.

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

Existing PO

PERMIT TO OPERATE

Permit No. R-F96020
A/N 414654

Equipment Description:

RESOURCE RECOVERY SYSTEM NO. 2 CONSISTING OF:

INTERNAL COMBUSTION ENGINE (CG2-HB), COOPER BESSMER, SPARK IGNITION, FOUR STROKE, WITH A MODIFIED TURBOCHARGED-INTERCOOLED V-16 TYPE, MODEL NO. LSVB-16-SGC, 4166 HP, NATURAL GAS AND/OR DIGESTER GAS FIRED, DRIVING A 3000 KW ELECTRIC GENERATOR, WITH AN EXHAUST HEAT RECOVERY STEAM GENERATOR, 6,010,200 BTU/HR CAPACITY, UNFIRED.

Conditions:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TINES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.
   [RULE 204]

4. THIS ENGINE SHALL HAVE AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER TO DETERMINE THE ENGINE ELAPSED OPERATING TIME FOR EACH FUEL BLEND BURNED.
   [RULE 1110.2]

5. A FLOW INDICATING AND RECORDING DEVICE SHALL BE INSTALLED IN THE FUEL GAS, OR FUEL BLEND, SUPPLY LINE TO THE ENGINE TO MEASURE AND RECORD THE QUANTITY OF EACH FUEL GAS (IN SCFM) BURNED.
   [RULE 204]

6. SAMPLING PORT SHALL BE INSTALLED FOR THE INLET GAS LINE TO THE ENGINE TO ALLOW THE COLLECTION OF A FUEL GAS OR FUEL BLEND SAMPLES.
   [RULE 204]

7. MONTHLY READINGS OF THE BTU CONTENT OF FUEL GAS (BTU/SCF) AT THE COMBINED INLET TO THE CGS ENGINES SHALL BE TAKEN USING AN INSTRUMENT APPROVED BY THE SCAQMD. ALL RESULTS SHALL BE RECORDED.
   [RULE 204]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

8. ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF THE DAY. [RULE 204]

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 33 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEED.

AIR CONTAMINANT	
CARBON MONOXIDE	600 PPMV AT 15% O2
PARTICULATES (PM10)	0.0058 GRAINS/ DSCF
ROG OR TNMHC (AS CARBON)	93 PPMV AT 15% O2

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE FIVE (5) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

AIR CONTAMINANT	LBS/DAY
CARBON MONOXIDE	2,644
NITROGEN OXIDES (AS NO2)	828
PARTICULATES (PM10)	72
ROG OR TNMHC (AS CH4)	372
SULFUR DIOXIDE	84

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

FACILITY PERMIT TO OPERATE
ORANGE COUNTY SANITATION DISTRICT

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).
E. OXYGEN
F. FLOW RATE
G. MOISTURE
H. TOXIC AIR CONTAMINANTS, FOR ONE ENGINE PER YEAR
I. ALDEHYDES (EXHAUST ONLY), FOR ONE ENGINE PER YEAR
J. TOTAL REDUCED SULFUR COMPOUNDS (INLET)
K. NITROGEN AND CARBON DIOXIDE
L. BTU CONTENTS (INLET)
M. POWER OUTPUT.

[RULE 1303(b) (1) AND 1303(b) (2) - MODELING AND EMISSION OFFSET], [RULE 1110.2], [RULE 404]

15 RECORDS SHALL BE KEPT AND MAINTAINED TO PROVE COMPLIANCE WITH ALL CONDITIONS FOR THIS PERMIT. THE RECORDS SHALL BE KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 204]

THIS PERMIT TO OPERATE R-F96020 SUPERSEDES PERMIT TO OPERATE F96020 ISSUED 7/07/2008.

Emissions And Requirements:

THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

16. CO: 2000 PPMV, RULE 1110.2
ROG: 250 PPMV, RULE 1110.2
NOx: 36 PPMV, RULE 1110.2
PM: RULE 404, SEE APPENDIX B FOR EMISSION LIMITS
SO2: 500 PPMV AS SO2, ORANGE COUNTY, RULE 53

Gaurang Rawal

From: Gaurang Rawal
Sent: Thursday, February 12, 2009 3:36 PM
To: Kogan, Vlad
Cc: Ahn, Terry
Subject: RE: Plant 2 CGS

Vlad,

This is to confirm my understanding, based on our previous conversations, that the Plant 2 applications for change of condition is for ECF only and will be processed accordingly. Therefore, initial request for >10% natural gas usage for the CGS engines is not evaluated. Any future requirements for >10% natural gas usage under Rule 1110.2 shall be addressed in separate applications.

Regards,

Gaurang Rawal
Air Quality Engineer
R ıery & Waste Management
South Coast A.Q.M. D.
21865 Copley Drive
Diamond Bar, CA 91765
grawal@aqmd.gov
Ph: (909) 396-2543
FAX: (909) 396-3341

-----Original Message-----
From: Kogan, Vlad
Sent: Thursday, February 12, 2009 2:45 PM
To: Gaurang Rawal
Cc: Ahn, Terry
Subject: FW: Plant 2 CGS

Gaurang,

This e-mail is to confirm our telephone conversation today. Please proceed with our request to include ECF in the permits for Plant 2 CGS engines. The corresponding Title V request for the minor permit revision will be submitted to you shortly. Please contact me or Terry if you have questions. Thanks,
VK

From: Kogan, Vladimir
Sent: Wednesday, February 11, 2009 1:44 PM
To: Gaurang Rawal
Subject: FW: Plant 2CGS

Hi Gaurang,

Based on the response I received from our CGS operating people we might agree on the temporary removal of the request to increase natural gas ratio in Plant 2 fuel blend from 10 to 25% as soon as our request to include ECF in our CGS emission limits containing in the same application is processed without further delays. We reserve the right to continue with our request to increase the natural gas concentration as stated in the R1110.

Please contact me if you have questions. Thanks,
VK

From: Halverson, David (O&M)

Sent: Thursday, February 05, 2009 11:19 AM
To: Kogan, Vladimir; Thompson, Rob; Van Voorst, Don
Cc: Ahn, Terry; Rothbart, Lisa
Subject: RE: Plant 2CGS

Don and his staff have succeeded in creating procedures to limit the natural gas use and have been successful for the last couple of months in keeping it below 10%. There will be some increased testing associated with the CEMS replacement project but I assume that natural gas usage is not counted toward the 100% limit.

We are OK with removing this exception request for natural gas usage.

Dave

Gaurang Rawal

From: Kogan, Vlad
Sent: Monday, January 19, 2009 3:20 PM
To: Gaurang Rawal
Subject: FW: Engines Source testing. Facilities ID 017301 abd 029110.

Hi Gaurang,

Maybe it is just a miscommunication but I believe that you have already seen our ECF results and the corresponding testing information. Just in case4 I'm forwarding you it once more.

The testing was conducted by the well-known company – SCEC from Orange, CA (Mike Bell – 714-282-8240). They are working at the majority of our source testing. I believe that Charlie is familiar with the company and its work. They are accredited by SCAQMD.

The ECF part of the testing was run by also very well-known company AETC (Advanced Engine Technologies Corp.) from San Leandro, CA. they are supreme authorities on this issue. Their president Greg Beshouri (510-614-6340) – is also well-known to everybody in the engines business.

Please contact me if other information is required.

Do we still need to submit a Title V minor permit revision application?

Thanks,
VK

From: Kogan, Vladimir
Sent: Thursday, July 31, 2008 3:33 PM
To: 'Charles Tupac'
Cc: 'ADejbahsh@aqmd.gov'; Gaurang Rawal
Subject: Engines Source testing. Facilities ID 017301 abd 029110.

Dear Mr. Tupac,

Enclosed please find the results of source testing of the Orange County Sanitation District (OCSD) Central Power Generator Systems (CGS) Internal Combustion Engines (ICE). Plant No.1 (ID No. 017301) is located in Fountain Valley CA and operates three ICE (A/N 414648, 414649, 414651). Plant No. 2 is located in Huntington Beach, CA (ID No. 029110) and operates five ICE (A/N 414653 to 414657). The testing was conducted in accordance with the requirements of paragraph (f)(1)(C) SCAQMD Rule 1110.2. Full source testing reports are located in this office and will be submitted to you upon request. Please note that that the enclosed source testing was not conducted to comply with the requirements of permits to operate for the engines. The results of the compliance source testing will be submitted to you separately.

Enclosed also are the results of testing and calculation of the Efficiency Correction Factors (ECF) for these engines. The determination of the ECFs is required by the paragraph (d)(1)(C) of the Rule 1110.2. The applications for incorporation of the ECFs in the permit conditions together with the applicable fees were submitted to SCAQMD on March 30, 2008 (Plant 2) and on July 30, 2008 (Plant 1).

If you have questions or further information is required please contact me at 714-593-7085 (vkogan@OCSD.com).

Regards,

VK

Gaurang Rawal

From: Kogan, Vlad
Sent: Tuesday, January 13, 2009 5:19 PM
To: Gaurang Rawal
Subject: FW: CGS issues

Gaurang,

I'm sorry, but it is absolutely necessary for us to receive a positive response to my e-mail from 1/6/09. As You know, we are Title V facility right now and should report any non-compliance. Our engines often operate at 40+ ppm of NOx that is OK with the ECF (e.g. 36 ppm x 1.3=46.8). But without approved ECFs that we submitted back in July 2007 we are not sure that such calculations can be used. Still, we do not have other choice than continue operating the engines under the assumption that our ECFs are confirmed per Rule 1110.2.

The issue of operating at more than 10% natural gas is less burning at the current mode. Still, when flares were monthly tested we didn't have enough di-gas at Plant 2 and were forced to operate engines at more than 10% natural g⁀ It will happen once every 1.5 months or so. Other possibilities of violating this R1110.2 provisions are also might happen.

So we really need your response asap and even faster. If you think that Charlie/Amir should be involved, please let me know (or transfer this e-mail to them)

Please contact me if you have questions. Thanks,
VK

From: Kogan, Vladimir
Sent: Tuesday, January 06, 2009 2:41 PM
To: Gaurang Rawal
Cc: Ahn, Terry; Rothbart, Lisa
Subject: CGS issues

Gaurang,

What is a situation with our application for including ECF to our engines emissions data? We submitted the application with the testing result back in July 2008. Can we use these results for calculation the compliance with NOx emission limits (e.g. consider these limits at 43-45 ppm and not at 36 ppm)?. Another issue is a permission to run the engines at more than 10% of di-gas. We submitted the application as specified by the Rule 1110.2 almost a year ago. As you understand, we are running engines at almost 100% di-gas but during the flares testing we might not be able to run the engines at 100% di-gas for a short time. In both examples such events are very rare and short-time but being a Title V facilities we'd like to avoid such situations completely. Thanks,
VK

Vlad Kogan
Senior Scientist
Environmental Compliance Division
Orange County Sanitation District
Tel: 714-593-7085
Fax: 714-962-8379

TABLE 1.2
SUMMARY OF RESULTS SCAQMD RULE 1110.2 PTC 17 & 8760 HOUR TEST
OCSD PLANT 2
ENGINE#2
June 18, 2008 (Low and High Load) & July 10, 2008 (Medium Load)

Parameter	Units	High Load	Medium Load	Low Load	Average
NO_X	ppmvd	39.7	37.8	28.8	35.4
	ppmvd @ 15% O_2	26.3	24.1	20.0	23.4
	lb/hr	3.13	2.47	1.98	2.53
	lb/day	75.2	59.3	47.5	60.6
CO	ppmvd	586.6	594.4	712.4	631.1
	ppmvd @ 15% O_2	388.6	378.6	494.6	420.6
	lb/hr	28.18	23.63	29.82	27.21
	lb/day	676.4	567.1	715.8	653.1
TGNMEO [1]	ppmvd	-	146.5	-	146.5
	ppmvd @ 15% O_2	-	93.3	-	93.3
	lb/hr	-	2.50	-	2.50
	lb/day	-	59.9	-	59.9
O_2	%	11.99	11.64	12.40	12.01
CO_2	%	6.99	7.79	6.83	7.20
Measured Q_a	BTU/BHP-HR	6,969	6,730	8,512	7,403.7
ECF	-	1.327	1.374	1.087	1.263
Load	KW	2,887.0	2,538.0	1,975.0	2,466.7
	%	96.2	84.6	65.8	82.2
Volume Flow Rate	DSCFM	10,838	8,970	9,445	9,751

[1] One Method 25.1 Tray (duplicate samples) was collected at average load. Results are the average of both samples.

OCSD Performance Test Summary
Manual Data Recording

Date	6/18/08	6/18/08	6/18/08	7/10/08	
LSVB16 Unit	2				
Time	8:10	9:00	10:18	10:00	Average
Generator Data					
	1	2 low	3 High	4 Avg	
Amps A:	144	119	160	147	
Amps B:	142	116	157	146	
Amps C:	142	117	157	146	
Voltage (KV):	12.35	12.29	12.29	12.30	
Power Factor:	0.80	0.80	0.87	0.80	
Calc. Generator Efficiency (%):	96.48	96.20	96.86	96.53	**96.52**
Net Electrical Power Output (P_{ne} KW):	2449	1975	2887	2538	**2462**
Mechanical Power Output (P_{me} BHP):	3403	2731	4021	3567	**3431**
Fuel Flow Meter Data					
NAT-GAS Fuel Flow (SCFM):	93	86	128	25	
DI-GAS Fuel Flow (SCFM):	545	538	610	656	
Calc. BSFC(BTU/BHP.Hr), q_a:	**7021**	**8512**	**6969**	**6730**	**7308**
Calc. BSFC(BTU/KW.Hr):	**9755**	**11774**	**9707**	**9458**	**10173**
Emissions Data					
RM NOx:	31.6	29.1	39.0	36.7	
RM O2:	12.2%	12.1%	11.8%	11.7%	
Calc. RM NOx @15%O2:	21.3	19.4	25.2	23.4	
RM CO (ppm):	590	692	580	590.533	
RM CO2 (%):	6.92	6.74	6.84	7.77	
NOx (lbm/Hr):	2.17	1.93	3.00	2.42	**2.38**
CO (lbm/Hr):	24.7	27.9	27.2	23.7	**25.88**
BSNOx (g/BHP.Hr):	0.29	0.32	0.34	0.31	**0.31**
BSCO (g/BHP.Hr):	3.29	4.63	3.07	3.02	**3.50**
BSNOx (g/KW.Hr):	0.40	0.44	0.47	0.43	**0.44**
BSCO (g/KW.Hr):	4.58	6.41	4.27	4.24	**4.88**
Engine Data					
Speed (RPM):	360	360	360	360	
AMP ("Hg):	17.3	11.4	23.0	17.4	
AMT (F):	98.0	97.5	101.3	99.8	
Load (%):	80%	66%	97%	86%	
Turbo Speed (RPM):	11260	9575	12560	11279	
Jacket Water Temp. IN (F):	172	171	177	175	
Jacket Water Temp. OUT (F):	177	177	177	177	
Ambient Temp. (F):	79.0	79.0	79.0	73.0	
Barometric pressure ("Hg):	29.87	29.88	29.89	30.12	
Relative Humidity (%):	57%	57%	57%	73%	
Turbo Air Inlet Temp. (F):	77	79	78	78	

AUTO-RECORDING SUMMARY
OCSD Standard Form

Plant	**2**				
Engine	**2**				
Date	####	6/18/08	6/18/08	7/10/08	
Time	8:10	9:00	10:18	10:00	Average
Engine Data					
SPEED (rpm):	360	360	360	360	
Torque (%):	82.3%	65.5%	96.5%	85.6%	
Output (bhp):	3428	2731	4021	3567	**3437**
AMP ("Hg):	17.3	11.4	23.2	17.8	
PGP (PSI):	25.8	19.9	31.7	26.5	
PDP (PSI):	17.3	14.3	20.3	17.8	
AMT (deg F):	98.9	97.5	101.3	99.8	
IT (deg BTDC):	9.0	9.0	8.7	9.6	
Engine Performance					
NG Fuel Flow (SCFM):	84.7	87.1	128.2	28.5	**82.1**
DG Fuel Flow (SCFM):	613.2	540.7	657.1	726.7	**634**
LHV Blend Ratio:	82%	80%	76%	94%	
BSFC (BTU/BHP-HR):	7523	8573	7382	7464	**7736**
NOx MASS FLOW (lbm/HR):	2.45	1.99	3.32	2.76	**2.63**
CO MASS FLOW (lbm/HR):	28.5	30.1	29.9	26.4	**28.7**
BS NOx (g/BHP-HR):	0.324	0.331	0.375	0.351	**0.345**
BS CO (g/BHP-HR):	3.77	5.00	3.37	3.36	**3.88**
Emissions Data					
RM NOx (ppm):	32.5	28.8	39.7	37.8	**35**
RM O2 (%):	12.3%	12.4%	12.0%	11.6%	**12.1%**
RM NOx @15%O2:	22.2	20.0	26.3	24.1	**23.1**
RM CO (ppm):	622	712	587	594	**629**
RM CO @15%O2	425	494	388	379	**422**
Combustion Data					
Engine Avg PP (psi):	757	650	872	772	
Engine Avg LOPP (CA deg.):	17.6	16.4	18.2	17.6	
Engine Avg Std Dev. PP(psi):	30	28	31	33	
Engine Exhaust Temp.(F):	867	849	882	878	

Gaurang Rawal

From: Kogan, Vlad
Sent: Tuesday, June 10, 2008 12:02 PM
To: Marty Kay
Cc: Mike Mills; Jay Chen; Charles Tupac; Gaurang Rawal; Al Baez; Howard Lange; Laki Tisopulos
Subject: RE: PTC-17

Marty,

SCEC is the source testing company that very often works for us, including the very this moment. Unfortunately, they have notified us that they are unable to perform this task. They recommended another company – AETC, also known to us, and I believe to you. Today AETC sent me a quotation for performing this task at two engines with possible extension to others. I will try to find money and somehow secure their service that is not an easy task (our bidding process is usually a very long one). Hope that somehow it will work.

Not being an electrical engineer and expert in this area I do not believe that I have mentioned something about a n ssity of using a dyno for the ECF-related measurements. If it is attributed to us it might be our electrical guy who came with me. I really do not remember this point, just definitely not me. Several people I applied to did mention a necessity to use an expensive and specially calibrated instruments as a reason of refusing to perform this job. Anyway, let's see what would happen.

I still believe that the ECFs that we are determining for years with the easily defined and reporting parameters are much better (and more conservative) for this task. We are regularly (monthly) measuring heat capacity of the gas we are burning together with the power output. It is simpler, way, way cheaper and we are doing it anyway all the time.

Thanks,
VK

From: Marty Kay [mailto:mkay@aqmd.gov]
Sent: Tuesday, June 10, 2008 11:26 AM
To: Kogan, Vladimir
Cc: Mike Mills; Jay Chen; Charles Tupac; Gaurang Rawal; Al Baez; Howard Lange; Laki Tisopulos
Subject: FW: PTC-17

Vlad,
We don't endorse or recommend anyone in particular, but we have been informed that SCEC http://www.scec.com/ is able to do the efficiency testing.
You will need to work out a test plan with Engineering after you apply for a change of permit conditions to revise the emission limits with the with the efficiency correction factor.

The ASME test method does not require a dyno to measure engine output, as you stated at the committee meeting. It provides for alternate approaches for engines in the field.

Martin Kay
Program Supervisor
Science and Technology Advancement
SCAQMD
(909) 396-3115
mkay@aqmd.gov

-----Original Message-----
From: Howard Lange
Sent: Tuesday, June 10, 2008 10:12 AM
To: Marty Kay; Al Baez
Subject: PTC-17

FYI, SCEC tells me that they are offering the efficiency determination. It is actually AETC that performs the test and calculations. They plan to use the indirect method since almost all biogas engines are connected to generators. A price of about 7k was mentioned. They wanted to know about identical engines. I told them the rule requires a test for each enmgine.

Howard Lange
Air Quality Engineer II
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
909-396-3658 (3252 fax)

4/23/2008

TERRY AHN
ORANGE COUNTY SANITATION DISTRICT
P O BOX 8127
FOUNTAIN VALLEY, CA 92728

Facility ID: 29110
Located at: 22212 BROOKHURST ST, HUNTINGTON BEACH

Thank you for filing your application(s) with the South Coast Air Quality Management District (AQMD).

The application number(s) assigned by AQMD to your application package(s) is/are on Page 2 of this letter. Please refer to the information on Page 2 when contacting AQMD for assistance. The information you submitted with your application(s) or in your latest submittal is complete to the extent that allows us to begin processing of your application(s), however some clarifying data may still be needed. The acceptance of your application(s) does not imply that permit(s) has/have been approved. The engineer assigned to process your application(s), as indicated below, may contact you if additional information is required.

If you have any question or need additional information about your application(s), please contact the engineer listed below:

Engineer: Gaurang Rawal **Telephone:** (909) 396 - 2543

For general information about AQMD's permitting process, please call (909) 396-2468.

cc: Application file(s)

AQMD PERMIT APPLICATION INFORMATION

(Please refer to this information when contacting AQMD for Assistance)

4/23/2008

Facility ID: 29110

Application Number (s)	Equipment Description
480908	I C E (>500 HP) NAT & DIGESTER GAS
480909	I C E (>500 HP) NAT & DIGESTER GAS
480911	I C E (>500 HP) NAT & DIGESTER GAS
480912	I C E (>500 HP) NAT & DIGESTER GAS
480916	I C E (>500 HP) NAT & DIGESTER GAS

ORANGE COUNTY SANITATION DISTRICT

RECEIVED

'08 MAR 27 P4:07

From: Office of the Executive Officer Date: 3-27-08
To: Wayne
Cc: Ed, Marty
For your action by: ___ For your info. ✓ handling ✓
Please for: ___ signature, cc: ___

March 25, 2008 SCAQMD
EXECUTIVE OFFICE

phone:
(714) 962-2411
fax:
(714) 962-0356
www.ocsd.com

mailing address:
P.O. Box 8127
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92728-8127

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10844 Ellis Avenue
Fountain Valley, CA
92708-7018

Dr. Barry Wallerstein
Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

SUBJECT: Compliance with SCAQMD Rule 1110.2 for Five Digester Gas-Fueled Engines at Orange County Sanitation District's Plant No. 2 (SCAQMD Facility ID No. 029110)

The purpose of this letter is to present the Orange County Sanitation District's (OCSD) permit application for a change of conditions to approve the burning of more than 10% natural gas in five digester gas–fueled internal combustion engines, to avoid the flaring of digester gas, operating at our Plant No. 2 Wastewater Treatment Plant located in Huntington Beach, CA. This request is being submitted to you in accordance with the provision of subparagraph (e)(7) of the Rule 1110.2, adopted by SCAQMD's Governing Board on February 1, 2008. With this permit application, we are also requesting a change of conditions for Efficiency Correction Factor (ECF)-corrected emission limits for the engines.

Background Information

The five engines at Plant No. 2, regulated by Rule 1110.2, are part of OCSD's Central Power Generation System (CGS). Each of these engines are rated at 4,166 brake horsepower (hp) and can produce up to 3.0 megawatts (MW) of electricity, thus enabling OCSD to operate its wastewater treatment processes using completely internal sources of power. As an essential public service this increases our ability to reliably provide wastewater treatment to over 2.3 million residents and numerous businesses in Orange County. The engines are fueled mostly by the digester gas produced at Plant No. 2 and supplemented by natural gas on an as needed basis. A minimum of 5% natural gas is required to maintain the pilot light for each engine. We also use a small amount of digester gas on boilers for plant process heat and monthly flaring testing.

In 2007, OCSD produced about 73 million cubic feet (mcf) of digester gas, averaged monthly, as shown in *Table 1 - Plant No. 2, Digester Gas Production, Fuel Consumption and Electricity Generation for 2007*. Based on the high heating value of 620-630 BTU/ft^3 for digester gas and using an energy conversion efficiency factor of 30-33%, this equates to approximately 6.5 to 7.5 MW electricity generated per month. As shown in *Table 2 - Plant No. 2 Power Demands at Different Weather*

Conditions, the average power demand ranges between 7.8 and 8.5 MW during dry weather period increasing to as high as 16 MW during a severe rainstorm.

In order to avoid flaring and meet the average dry-weather power demand, it is necessary to supplement the digester gas by an average of 22% by heat input of natural gas as shown in Table 1.

OCSD's Options to Address Rule 1110.2

There are two options available to OCSD to address Rule 1110.2:

Option 1: Operation of Engines at 80% Load and Purchase Power from Southern California Edison (SCE)

Under this option, OCSD would run two engines at about 80% load fueled with 95% digester gas and purchase power from SCE to meet the additional power demand. This would result in flaring of approximately 12 mcf/month of excess digester gas.

Option 2: Purchase Natural Gas to Supplement Digester Gas

Under this option, OCSD would run three engines at an 80% load to consume all of the digester gas produced; and one or more engines would be supplemented with natural gas. This would require approximately 13 mcf/month of natural gas which is between 20-25% of natural gas usage. With this option all digester gas would be utilized and *no flaring* would be required but would subject the engines to the lower emission limits for natural gas-fueled engines. The supplement of natural gas is required to keep the engines in their stable operating range of 80% load. The engine control system cannot regulate the engine speed if operated below a 70% load.

Conclusion

OCSD's goal is to completely utilize all of its valuable renewable fuel (digester gas) in the operation of its CGS engines while complying with the intent of Rule 1110.2 requirements. Option 2 would best meet that goal.

In summary, in order to avoid flaring digester gas and operate in compliance with Rule 1110.2 OCSD is requesting your approval to use up to 25% natural gas, monthly averaged, in our engines to supplement digester gas usage during normal operations. We would request that the following language in the engines permit conditions (PTC A/N 414653 to 414657) be added after the current Condition 5:

> "The Operator may burn more than 10% natural gas when it is necessary if the alternative to limiting natural gas to 10% would be shutting down the engine and flaring more digester gas or the engine requires more natural gas in order to provide enough thermal energy to operate the sewage treatment plant"

We have submitted the engines' operational data including the detailed calculation of Emission Correction Factors to your Permitting staff. The updated data and other pertinent information are attached to this letter. Any other information necessary to process the permit application will be submitted to your staff upon request.

If you have questions or further discussion is required, please contact the undersigned at (714) 593-7080. The staff member assigned to this issue is Dr. Vladimir Kogan and he can be reach at (714) 593-7085.

Edward Torres
Director of Technical Services

ET:wh
H:/dept/ts/620/general data/Air Group/Letters/D1_VK_Compliance_Rule 1110.2 Digester Gas-Fueled P-2_ID 029110.doc

c: Jay Chen, Senior Air Quality Engineering Manager
Charles Tupac, Toxics and Waste Management

Enclosures:

- Application for changing of permit conditions Form 400-A
- Check for the Applications Processing Fee in the amount of $8,204.15
- Table 1 - Plant No. 2 CGS Energy Output, Digester Gas Production, and Fuel Consumption for 2007
- Table 2 - Plant No. 2 Power Demands at Different Weather Conditions